GREAT BAY
NATIONAL ESTUARINE
RESEARCH RESERVE

COMMUNITY-BASED PLANNING FOR CLIMATE CHANGE IN NEW HAMPSHIRE

Stay in touch

The NERRS Science Collaborative is committed to sharing information about the projects we fund in the most effective way we can. Updates about this project will be communicated through nerrs.noaa.gov, webinars, conferences, and meetings. If you would like to stay in touch with this project, contact our program coordinator Cindy Tufts: cindy.tufts@unh.edu

For information about the applied science, contact Paul Kirshen, research professor of civil engineering and earth systems research, University of New Hampshire, at 603.862.4637 or paul.kirshen@unh.edu

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What's happening?

A multi-disciplinary team from the University of New Hampshire and the Great Bay National Estuarine Research Reserve has received $683,472 to design a climate change adaptation plan with the town of Exeter, New Hampshire. The team will work with the community to develop a plan that is based upon Exeter's perspectives using hydraulic and hydrologic modeling and climate change scenarios .

Ultimately, the team will provide a flexible, science-based plan that will help Exeter address the intensifying impacts of stormwater runoff, flooding, sea level rise, nonpoint source pollution, and habitat change in the context of a changing climate. They also will evaluate, document, and share their process for the benefit of other coastal communities facing similar challenges.

This project aims to provide a flexible, science-based plan that will help Exeter, N.H., address the impacts of climate change on municipal infrastructure like the dam pictured above, habitats, and human safety.

Why this project?

New Hampshire's changing climate is evident in the state's warmer winters, hotter summer days, reduced snowfall, rising sea levels, more severe storms, and more persistent droughts. As the climate continues to shift, the health of coastal communities will depend on their ability to anticipate and adapt to the impacts of that change. How, for example, will towns protect expensive, vulnerable infrastructure like wastewater treatment facilities from a range of potential increases in sea level rise? Which actions to reduce flooding would be more cost-effective to take now? On which might it be more prudent to wait?

Addressing questions like these is exacerbated by the fact that, while the impacts of climate change do not respect town boundaries, land use decision-making in the Great Bay watershed is largely a local process. The watershed encompasses 49 towns in two states—that's effectively 49 different ways of deciding how land is developed and, to a certain extent, how climate change will be addressed.

Learn more on back page...

About the funder

The NERRS Science Collaborative puts Reserve-based science to work for coastal communities coping with the impacts of land use change, stormwater, non-point source pollution, and habitat degradation in the context of a changing climate. Our threefold approach to connecting science to decision making includes:

- Funding: We award an average of $4 million annually to projects that incorporate collaboration and applied science to address a coastal management problem.
- Transfer of knowledge: We are committed to sharing the knowledge generated by the local, place-based research we fund. If you're interested in following this project, contact cindy.tufts@unh.edu.
- Graduate education: We sponsor two fellowships in TIDES, a Master's of Science program at UNH that provides the skills needed to effectively link science to coastal decision making.

The program operates by a cooperative agreement between the University of New Hampshire (UNH) and the National Oceanic and Atmospheric Administration.

Learn more at....

nerrs.noaa.gov/ScienceCollaborative.aspx

The team will work with a range of Exeter's stakeholders to explore common ground and divergent views on climate change in order to increase the likelihood that the resulting adaptation plan will be used.

How will this project work?

This project team will draw on expertise in collaborative practices, health management, wetlands ecology, watershed hydrology, and climate science to work with a dedicated group of stakeholders representing Exeter town departments, community organizations, residents, regional decision-makers, and state and local regulatory bodies.

The planning process will begin with a series of neighborhood discussion groups to explore common ground and divergent views on climate change. These will be followed by full public meetings, with all stakeholders invited and smaller focused workshops. The *New Hampshire Listens* program—which facilitates and supports civil, informed dialogue about social and environmental challenges—will provide facilitation support at many of the meetings. Great Bay NERR will also provide facilitation.

The team will use these forums to establish a stakeholder working group that will meet regularly with project scientists to provide feedback on the planning process that will inform the comprehensive assessment of the town's vulnerability to climate change.

This assessment will translate different scenarios of climate change into a range of potential impacts through the use of flood projections and models of pollutant loads, stormwater flows, and impacts on tidal marshes, aquatic ecosystems, and human health. It also will project the outcome of different management actions. For example, it will forecast what would happen if the town continued to build-out a particular area using existing zoning with conventional drainage structures, versus shifting toward the use of low-impact development techniques to manage runoff.

The team and stakeholders will use this assessment as a framework to analyze possible climate change impacts in Exeter and the town's ability to adapt or respond to this change. This dialogue will be the basis for a draft adaptation plan for review by the Town of Exeter, and eventually, with recommendations for moving forward.